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Assessment of utilization of long- lasting insecticidal nets (LLINs) and its associated factors in Rural Communities of Dire Dawa Administration, Eastern Ethiopia

By

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List of abbreviations

CHAs	Community Health Agents
CSA	Central Statistical Agency
DALYs	Disability Adjusted Life Years
DHS	Demographic and Health Survey
FMOH	Federal Ministry of Health
HEWs	Health Extension Workers
HSDP	Health Sector Development Plan
IEC	Information Education and communication
IRS	Indoor Residual spraying
ITNs	Insecticide- Treated Nets
LLINs	Long -Lasting Insecticidal Nets
MIS	Malaria Indicator Survey
NGOs	Non- Governmental Organizations
PATH	Program for Appropriate Technology in Health
PMI	President's malaria Initiative
RBM	Roll Back Malaria
RHB	Regional Health Bureau
SNNPR	Southern Nations, Nationalities, and People's Region
SSA	Sub- Saharan Africa
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

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Abstract

Background: In Dire Dawa Administration more than 83,705 long-lasting insecticidal nets (LLINs) have been distributed since 2005. The task now is to ensure that the household members correctly and consistently use nets in the households.

Objectives: To assess the utilization of LLINs and examine the associated factors in the rural communities of Dire Dawa Administration. The information obtained from this survey was essential for refining replacement of LLINs distribution programs and for developing effective communication for optimal net use.

Methods: A community–based cross-sectional study using a multi-stage sampling procedure and interviewer-administered questionnaire was conducted in 759 households for the study subjects from January to June 2009. The sample size was calculated using the formula for estimating a single proportion, assuming 60% under five children had slept under the nets the night preceding the survey.

Results: Of the 759 households surveyed, 339(44.7%) the households were reported as being utilized LLINs the previous night. There were 1299 LLINS in the 709 households and 538 (41.4%) of these LLINs were utilized. Persons reporting sleeping under LLINs the previous night were 29.5 % overall; 45.6% under-five children, and 83.3% pregnant women respectively. Availability of separate bed/mat and status of the LLINs significantly associated with LLINs utilization.

Conclusion and Recommendation: Most LLINs were distributed more than two years before, and majorities were in bad condition at the time of the survey. Therefore, it is recommended that verbal communication during distribution should be complemented with tested flyers with key message as back-up references. In addition, health extension workers as well as health professionals should strengthen health education activities about the benefit and utilization of LLINs to the community.

Introduction

Malaria represents about 1.4% of the global burden of disease (1) and in Africa; it is the primary cause of disease burden as measured by Disability Adjusted Life Years (DALY) lost of 10.8% (2, 3).The continent bears over 90% of the global burden of malaria and about 2.7 million deaths attributable to malaria occur in Africa. Each year over 300 million people in the continent suffer from malaria, and the worst hit being young children and pregnant women (2-4).

More than three quarter of the global malaria deaths occur in under-five children living in malarious countries in sub-Saharan Africa (SSA) (5), where 25% of all childhood mortality below the age of five (about 800,000 young children (5) is attributable to malaria.

Ethiopia is one of the Sub-Saharan African countries that seriously affected by the disease. Three-fourths of the total land area of the country is malarious with more than two-thirds of the total population being at risk of malaria infection (6,7). Altitude and climatic factors are the main determinants for malaria epidemiology in the country, and areas below 2000 meters sea level traditionally classified as malarious or potentially malarious (7, 8). However, a recent report has shown that malaria occurs in highland fringe areas including urban sites; the main factor being is climate change (9). The disease is mostly seasonal in nature and unstable in characteristic, thus, predisposing a majority of the population to frequent epidemics.

Of all the four Plasmodium species in the country, the two epidemiologically important species are *Plasmodium falciparum* and *Plasmodium vivax*, which account 60% and 40%, of the cases, respectively. *Anopheles arabiensis* is the principal vector for malaria transmission in Ethiopia, followed by secondary vector such as *Anophles pharoensis* (7). *Anophle arabiansis*, predominantly exists in small sunlit breeding sites flourishing after cessation of the main rainy season and is known to be responsible for the cause of major malaria epidemic in the country.

Early detection and prompt treatment of malaria cases, selective vector control (indoor residual spray, use of ITNs and source reduction) and epidemic prevention and control are the major strategies adopted for malaria prevention and control in Ethiopia. So far, the application of in-door residual spraying (IRS) using DDT has been at the center of vector control operations in the country (10).

ITNs are relatively new to most of Ethiopians; in the year 2000, very few households in Ethiopia owned them (11), and many had not even heard of them (12). Concerted interventions to promote ITNs began in 2004 and focused on making affordable nets available through the commercial sector, both at commercial prices and subsidized prices via direct subsidy or vouchers/coupons to vulnerable groups.

The 2007 Ethiopia's Malaria Indicator Survey (MIS) is a large, nationally representative survey conducted by the FMOH in collaboration with the Central Statistical Agency (CSA), the Malaria Control and Evaluation Partnership in Africa (a program at PATH), The Carter Center, the president's Malaria Initiative (US Centers for Disease Control and Prevention/ USAID, WHO, UNICEF, the Center for National Health Development in Ethiopia, and the Malaria Consortium showed that in areas below 2,000m, 68.9% of households have at least one net of any kind, 65.6% own at least one ITN and 65.3% of households own at least one LLIN. Nationally, 55.7% of the households own at least one net of any kind, 53.8% own at least one ITN and 53.1% own at least one LLIN. Among children under age five years, 32.7% slept under LLIN the night before the survey, and that this percentage went up to 41.2% in malarious areas. Among pregnant women, 35% had slept under LLIN the previous night (13)

In Dire Dawa Administration, according to 2004/2005 Administrative Health Bureau annual report, malaria was first cause of out patient consultations, second cause of hospital admissions

and fourth cause of hospital death (14). Malaria was the cause of recurrent and devastating epidemics in 1989, 1993, 1999 and 2003 G.C in the Administration. In the Administration, more than 83,705 LLINs have been distributed mostly in rural and some of the peripheral urban kebeles between 2005 and 2008 with the support of United Nations Children's Fund (UNICEF), World Health Organization (WHO), Global Fund (Global fund). However, consistent follow- up of whether LLINs are properly used by households, their status as presence of holes or tears and other relevant information is lacking. Therefore, the aim of this study looks at household level Knowledge about Malaria prevention and control, net ownership and utilization, besides to explore the reason for not properly utilizing the Nets. This information is essential for refining LLINs distribution programs for developing effective communication; for optimal net use and to bring about public health impact.

Literature Review

Interventions against malaria in Ethiopia first started in the late 1950s in response to the 1958 epidemic. The service was organized what was then called the Malaria Eradication Service, a pilot project established for 15 years. The malaria eradication service provided malaria diagnosis and treatment with chloroquine and spraying of houses with indoor residual spray. With the change of approach from malaria eradication to control in 1972, the malaria control program in Ethiopia was re-organized as vertical program operating across the country through 17 zonal and 70 sector offices. Laboratory diagnosis and treatment services and seasonal spraying operations were provided through the sector offices.

In 1993, the vertical malaria control program was reorganized in line with the government's plan to democratize and decentralize the health services. In the decentralized system, planning and implementation of malaria prevention and control activities belong to the Regional Health Bureaus (RHB), while the federal level is mandated to handle policy and guideline development and capacity building. Following the launch of the RBM partnership in 1998, Ethiopia convened a national consensus- building workshop in March 2000 and stated a coordinated action against malaria with its local and international partners. The RBM partners developed a five-year National strategic plan for malaria prevention, control (2001-2005), and conducted an RBM baseline survey in 14 districts in 2001 to document baseline information prior to launch large – scale interventions. In 2005, the FMOH of Ethiopia identified four major areas of intervention for malaria control. These four major areas of interventions for the period of 2006-2010 were defines the following targets:

- **Early diagnosis and prompt treatment**: achieve 100% access to effective and affordable treatment for malaria by the end of 2010 as compared to the 5% level in 2005.

- **Selective vector control**: obtain and maintain 100% coverage of all households in malarious areas with an average of two ITNs per household by 2007; and increase IRS coverage to 60% in epidemic prone areas by 2010 as compared to the 20% coverage in 2005.
- **Epidemic prevention and control**: early detection and 80% containment of malaria epidemics within two weeks of onset by 2010 as compared to 31% in 2005.
- **Information education communication:** provide 100% of households with targeted IEC in all key malaria messages to increase use of interventions

Major achievements since 2006 were; distribution of six million doses of the anti-malaria drug Coartem; cover up to 2.2 million newly identified malaria cases, and the drug has been made available to all health facilities and communities and no stock outs have been reported. In addition, more than two million Rapid Diagnostic tests (RDT) were distributed to all health facilities.

Regarding selective vector control, more than 20 million ITNs were distributed, meeting the target set in all regions and resulting in a national coverage of 102%. Besides, on average one million households were sprayed in 3,000 localities, protecting 5 million people. With this all achievements, malaria fell from the first to sixth most frequent cause of out patient service delivery from 2005/2006 to 2006/2007. (15)

The importance of large-scale use of ITNs has been identified as one of anti-malari, programme approach, as it is the case with national programme in the Health office since 2002. The Health office received 19,600 ITNs from UNICEF in mid 2002 .Since 2005 the ITNs was replaced by LLINs, and more than 83,705 LLINs have been distributed mostly in rural and some of the peripheral urban kebele. (16).

The main challenge in the earlier time in prevention and control of malaria in the Administration were increase cost of insecticides and other operational expenses, poor community participation during indoor residual spray operation and plastering of houses by mud and other materials after the spray. Some of the problem mentioned above resolved after fully deployment of Health Extension Workers (HEWs) in the peripheral health facilities.

In the Administration the utilization of LLINs were studied by MIS and revealed that ownership of LLINs by under five children at least one LLIN was 54.8% and 32.7% were more than one LLINs. Among these households, children under age five years who slept under LLIN last night were 57.7%. Similarly, women and pregnant women who slept under LLINs last night were 51.0% and 100% respectively.(13)

The two important RBM indicators for monitoring the progress of malaria control interventions are the proportion of households, which own one or more nets, and the proportion of under- five year-olds children who sleep under a net during the previous night (17). Net ownership is important to assess the effectiveness of the distribution channels of the RBM programme and suggest programme modifications where there are lapses. However, utilization of ITN by household members is the crucial indicator that leads the desired epidemiological impact (18).

A meta-analysis of household surveys on net utilization and ownership found a wide gap between net possession and use. ITN ownership was found to be between 0.1% and 28.5%, while use among children less than five years of age ranged between 0% and 16% (19). Perceived risk of malaria and benefits of the nets by the population were also found to be the main force that drives demand. A study in Nigerian found that households with a recent attack of malaria and those with higher willingness to pay were more likely to purchase a net than their counterparts (20) Utilization has, however, been found to vary with seasons of the year and acceptability of

the nets in terms of size, colour and shape. In a study in Ghana indicated 99% of the net recipients were found to use the nets during the rainy season, while only 20% used it during the dry season (21). Demographic characteristics like age, education, size of the household, and ethnicity of the people also influence the use of mosquito nets. Some studies show that children are less likely to use nets (21), particularly in rural area, while others found no significant association between age and net use (22)

The 2003 National Demographic Health Survey report of Nigeria revealed that 12% households owned at least one net of any type and 2% of ITN (23). In this study, only 1.2% of under-five slept under ITN the previous night while 5.9% of them used any net. A study by Net-Mark in Nigeria showed that overall household ownership of any net found to have increased from 12% in 2000 to 27% in 2004, while ITN ownership increased from lower than 1% to 9% (24). The study also documented an increase in utilization of ITN by under-five children compared to previous years to 3.3%. In both studies, rural households were more likely to have a net than urban.

In the Oromia and Amhara Regions in Ethiopia a study conducted by Net Mark and US President's Malaria Initiative (PMI) in 2007 showed that; the overall net ownership by households was very high (91%), and most of the surveyed households owned more than one nets with an average of 1.8 per household (25). The vast majority of nets owned (84%) were the blue rectangular long-lasting insecticide-treated nets (LLINs) mostly distributed by the Ministry of Health and NGOs. Although net ownership was very high, a substantial but unknown number of nets obtained free have been sold ("leaked").(25)

The percent of nets used the prior night was higher in the Amhara region than the Oromia region (73% vs 60%) and was marginally higher in urban areas compared to rural and small urban areas

(71% vs 64%). (25) The highest rate of net utilization was in urban Amhara – Bahar Dar town, at 81%. Some (16%) nets currently in households had never been used: 11% in Amhara and 20% in Oromia.

Most unused nets were still in the blue package. Reasons for not using nets were the children usually did not sleep under a net, even if there were nets in the household. Often there is only one bed in the home; if so, the parents use it and the children sleep on the floor, usually on mats. It is much easier to hang a net over a bed than to hang it over an open area where there is no structure underneath the net. Even if the household was given 2-3 nets, often only one net is used because of lack of space for hanging additional nets, or because the parents wanted to save the other nets. Nets were used for protection against mosquitoes, but people highly value the fact that treated nets kill bed bugs. For some, that is an important motivating factor for using the net. Unfortunately, that leads some to put the net directly on the mattress instead of hanging it over the bed. Although bed bugs do not transmit disease, they cause itchy and sometimes painful bites. Treated nets are also valued for their ability to kills fleas and flies (25).

The carter center, Addis Abeba in collaboration with University of Cambridge, United kingdom conducted malaria prevalence & Mosquito net coverage in Oromia and SNNPR Regions of Ethiopia in January 2007 and found that at least one mosquito net (any type) was reported and verified by observations in 47.5% of the households, with a range of 0 to 5 net observed. Of all the nets seen in all households, 70.1% were LLINs, and 35.1% of households had at least one LLIN (26).

The over all proportion of people reporting sleeping under any mosquito net the previous night was 35.4%. Among the population with particular vulnerability to malaria, the under five years years-old and pregnant women, sleeping under a mosquito net was reported for 40.1% and

42.9% , respectively. Persons reporting sleeping under LLINs the previous night were 25.2% overall; 26.7% of children under five years; and 32.0% of pregnant women. There were no difference in the proportion of people (overall, under fives and pregnant women) sleeping under any net or LLIN between Oromia and SNNPR regions.(26)

A study conducted in wondo woreda reveled that ITNs use by under five children and pregnant women were 58% and 74.6% respectively (27). Baseline survey for the implementation of insecticide treated mosquito nets in Malaria control reveled in Ethiopia that majority of the study participants has a knowledge willingness to use ITNs (28).

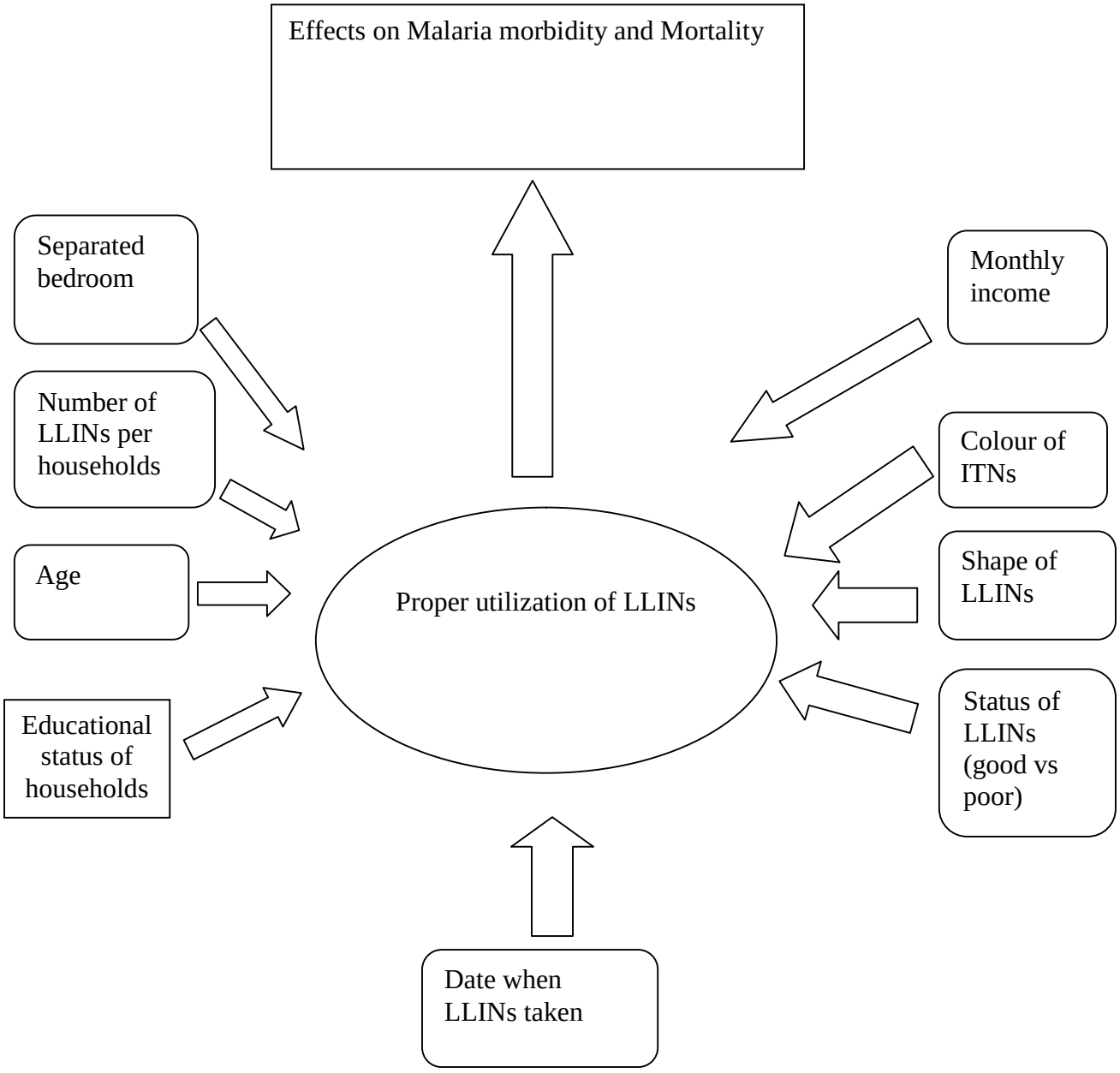

Figure 1 Conceptual framework for proper utilization of ITNs

Objectives

General objective

- To assess utilization of long-lasting insecticidal nets (LLINs) and examine the factors associated with its utilization in the rural communities of Dire Dawa Administration, Eastern Ethiopia.

Specific objectives

- To assess the knowledge and perception of the community about malaria and its control.
- To assess the attitude and practice of the community towards the use of vector control measures particularly LLINs.
- To determine LLINs coverage at household level and utilization by the community particularly by under-5 children and pregnant women.
- To identify factors associated with the utilization of LLINs by household members.

Methods

Study area

Dire Dawa Administration shares border with Oromia Regional State in the South and Somali Regional state in the North, East and West. The study was carried out between January and June 2009 in communities of 16 rural kebeles. Dire Dawa Administration is located at 515 km East of Addis Ababa, and one of the smallest regions in the country with an estimated surface area of about 1288.02 square kilometer between 9^0 27' and 9^0 49' North latitude and between 41^0 38' and 42^0 19' East longitude.

The topography has a sloppy gradient from the Southern to the Northern part with an altitude which range from 950 - 2260m a. s. l,. Dire Dawa town has an altitude of 1160m a.s. l. The Administration is characterized by relatively high temperature through out the year with minor seasonal variations. The mean annual temperature is 31.4^0c**;** where as the average minimum temperature is 18.2^0c. Accordingly, the Administration's climate is characterized by high temperature, the Dry lower kola (61%), dry upper kola (32%) and moist upper kola (2%) constitute about 95% of the total agro-ecological zone of the region. The remaining part of the region is dry weyna dega (4%) and moist weyna dega (5%). (29)

The rainfall in Dire Dawa Administration is bi-modal with peak in April and August with low and highly variable in both amount and space. The mean annual rainfall in Dire Dawa Administration and the surrounding areas ranges from about 1000mm in the south to about 500 to 600mm in the Northern lowland. Almost all of the administration about 97% receives less than 900mm; revising the humidity the Administration has mean annual humidity of 29%. These explain the higher personal transmission that the optimum temperature, moisture, and humidity be met so that the parasite and the vector proliferation, breeding and longevity favored

respectively. Agriculture, as a primary economic activity in the rural area of the region, 93% of the population depends on mixed farming system (Agro-Pastorals) followed by 3% pastoral population and 4% of crop cultivation (29). Due to various administrative and Socio-economic reasons as well as degraded fertility of the soil, render this agriculture activity quite subsistence. The Administration has nine urban Kebles and thirty-two peasant associations, no zone and woreda.

Based on the 2007 CSA, Dire Dawa has a total population of 342,827, of whom 171,930 were men and 170,897 women; 232,854 or 67.92% of the population are considered urban inhabitants and 109,973(32.1%) of the population are rural. With an estimated area of 1288.02 square kilometers, the Administration has a population density of 328.06 people per square kilometer. There were 75,693 households in Dire Dawa administration with an average of 4.5 persons per household. The major ethnic groups in Dire Dawa include the Oromo (46.08%), Somali (24.24%), Amhara (20.09%), Gurage (4.54%), Harari (1.08%); the remaining 3.97% of the population consists of all other ethnic groups. 70.9% of Dire Dawa are Muslim, 25.6% Orthodox Christian, 2.8% Protestant, 0.4% Catholic, and 0.3% followers of other religions (11).

In the Administration, there are currently; five hospitals, thirteen health centers, and forty health posts. In addition, there are sixteen pharmacies, twenty-one drug shops and six rural drug vendours.The potential health service coverage in the administration reaches now 153%. Regarding health professionals in the Administration: there are nine specialist, twenty-one physicians, two hundred twenty six general nurses, and ninety two Para-medicals. The health sector with a view taking health service closer to population, the government introduced an innovative community based approch; the health extension program. In the administration based

on the approaches seventy-nine health extension workers were trained and deployed to the communities.(29)

Study design

A community–based cross-sectional study conducted from January to June 2009.

Source population

The source population was the population of the twenty-five rural Kebles in the administration.

Study Population

The study population was the population residing in sixteen-peasant association in the administration.

Sample size and sampling procedure

The sample size was calculated using the formula for estimating a single proportion, assuming 60% under five children had slept under LLINs the night preceding the study which is taken a research conducted by Ethiopian malaria indicator survey in 2007 (15),5% margin of error, and 95% confidence of level. Considering a 5% adjustment for non-response rate and two as a design effect, and then the calculated sample was 773 households.

Table 1: **Sampling table for Epi-info out put.**

Size of population	Confidence level (%)	Power (%)	Expected proportion of the factor	Margin of error	Design effect	None response rate	Sample size
109,973	80	80	60 %	5%	2	5%	330
109,973	90	80	60 %	5%	2	5%	544
109,973	**95**	**80**	**60 %**	**5%**	**2**	**5%**	**773**
109,973	99	80	60 %	5%	2	5%	1329
109,973	99.9	80	60 %	5%	2	5%	2163
109,973	99.99	80	60 %	5%	2	5%	3011

For this study, a two-stage cluster sampling method based on kebeles ; employed to obtain the study households. For sampling purposes, all kebeles in the rural area of the Administration was listed, identified into, accessible, and non-accessible kebeles. Twenty-five accessible kebeles were sorted and listed as a sampling frame. The nine urban and seven rural non-accessible *kebele*s were excluded from the sampling frame. Sixteen kebeles were selected from the sampling frame randomly and from each kebele, two villages were randomly included in the study.

Since surveying all households in the selected kebeles were time consuming and costly, it was subdivided into 2-3 approximately equal manageable villages (cluster of households) depending on the local condition using recognizable natural features (e.g., streams or rivers), landmarks or roads/ streets. Before subdividing the kebele into villages, its location, geographic demarcation and the number of households in each kebele were carefully identified, and its rough sketch map indicating the most important features was made. From each selected kebele, two villages were randomly selected from the list of the total villages in the kebele. By spinning the bottle at the center of the village, the direction was decided and all households in that, direction was surveyed until the allocated number of households for the village was fulfilled. The total sample size was allocated to the selected kebeles using probability proportionate to the size of the population/ households. On average, forty-seven households per kebele and twenty-four households per village was included in the study.

Data collection tools and procedures

Survey questionnaire was based on the Malaria Indicator Survey Household Questioner, modified for local conditions (28) and tested in field in non- survey Kebles to determine the validity of the pre-coded answers. Interviews were conducted with the head of household, or

another adult if the head of the household was absent or unable to respond for any reason by giving due emphasis to mothers. The English version of the questionnaire was translated into Amaharic version for ease of administration.

In the household questionnaire, respondents were asked about socio-demographic factors, Knowledge about the transmission and prevention of malaria, presence and type of mosquito net (verified by observation). Interviewers also asked to see each net by room in the house, determined whether it was a LLINs or ITNs, and asked who slept under it the previous night .Besides the questionnaire was elicit information on factors likely to influence for not properly and consistently utilizing of LLINs.

Data collection was conducted by Health Extension Workers and strictly supervised by Sanitarians. To overcome information bias the HEWs well informed about the purpose of the study and not to monitor their work and exchanged form their usual place to the other place during the data collection period. They were particularly trained on ways of administering the questionnaire and conducting the interview through house-to-house visits. All completed questionnaires were checked for consistency and completeness by the supervisors as well as by principal investigator.

Data Quality

Forms were checked by the supervisors as well as principal investigator in the field and inconsistency verified in place. Besides each filled questionnaire was checked and edited before data entry, and followed by checking all the frequencies.

Data analysis

Data was entered and analyzed using SPSS version 15 statistical software. Principal investigator did data entry. Proportions, means, medians, tables or cross-tabulations were used for data

summarization and presentation. Degree of association was measured using P-value with 95% confidence level. To asses, utilization of LLINs bivriate analysis was first conducted for each potentially independent variables and multivariable models were then conducted to overcome confounders and to see the true association between the independent variables with the dependent one.

Operational definitions

Clusters: - were defined as Kebles (equivalent to villages)

Tukuls: The traditional rounded houses

LLINs: A ready-to-use pre-treated mosquito net, which requires no further re-treatment during its expected lifespan 4-5 years; that depends on the material they produced and on how the net is handled in general.

Ethical considerations

Ethical clearance was sought from Gondar University ethical review committee. Then, written permission was obtained from Administrative Health Bureau. Permission to undertake the study was also obtained from each peasant association head before the start of the study. Informed consent to participate in the interview was obtained from the heads of the household.

Results

The sample size calculated for the study was 773 but full information was collected from 759 (98.2%) household. The non-response rate was 14(1.8%). The majority 550 (72.5%) the respondents were females and the rest 209 (27.5%) were males. Of which 272 (35.8%) were head of the households; 445(58.6%) were spouse of the household and the rest 42 (5.5%) of the respondents were either son or daughter. The mean age of the respondents was 34.0 year (median=31.0 year) and the mean family size of was 5.4. All of the respondents were Muslim, among them 702 (92.5%) were Oromo and 57 (7.5%) were Somali.

The majority of the respondents were married (monogamous) which accounts 480 (63.2%) followed by 155 (20.4%) married (Polygamous), and 56 (7.4%) widowed respectively. With regard to the education, 584 (76.9%) were illiterate (unable read and write) and 175 (23.1%) of the respondents were literate (formal education and able read and write). Concerning the family income of the respondents 452 (59.6%) were 100 to 200 birr and 363(64.6%) of the respondents were farmers. (Table 2).

Table 2: Socio Demographic characteristics of rural communities of Dire Dawa Administration Dire Dawa, 2009.

Variable (n=759)	Frequency	Percent
Sex		
Male	209	27.5
Female	550	72.5
Status of the respondent in the household		
Head of the household	272	35.8
Spouse of the household	445	58.6
Son or daughter	42	5.5
Age in years		
15-29	290	38.2
30-45	380	50.1
>45	89	11.7
Religion		
Muslim	759	100.0
Ethnicity		
Oroma	702	92.5
Somali	57	7.5
Marital status		
Married (monogamous)	480	63.2
Married (Polygamous)	155	20.4
Never married (single)	38	5.0
Divorced	29	3.8
Widowed	56	7.4
Separated	1	.1
Educational level		
Literate	175	23.1
Illiterate	584	76.9
Monthly income (Birr)		
Less than 100	65	8.6
100 to 200	452	59.6
201 to 300	127	16.7
>300	115	15.2
Occupational status (n=562)		
House wife	96	17.1
Farmer	363	64.6
Live stock rearing (Pastoralist)	37	6.6
Student	35	6.2
Daily laborer	8	1.4
Trader	19	3.4
Others	4	.7

About 53% of the respondents thought that malaria is the most prevalent disease in their area. Regarding malaria transmission, only, 316(41.6%) the study subjects believed that malaria could be transmitted from person to person. When asked about how some one is infected with malaria, 202(26.6%) mentioned due to the bite of infective mosquitoes. A large number of the respondents, which accounts 58.4%, did not know how malaria transmitted from person to person. Mosquitoes are mainly believed to bite human beings at night accounts 477 (62.8%).

Fever, headaches, Shivering/chills and sweating were the most frequently mentioned signs and symptoms of malaria reported by 88.9%, 54.1%, 42.8%, and 23.0% of the respondents respectively.(see table 3). Among these 386 (50.8%) of the respondents answered three major sign and symptom of malaria that is fever, headache, shivering/chills and sweating, 205 (27%) were answered; two major sign and symptoms, and 152(20.0) answered only one major sign symptom of malaria. About, two hundred seventy one (35.7%) of the respondents thought that children suffer most from malaria. While 172 (22.7%) thought that pregnant and children, and 81 (10.6%) the respondents mentioned pregnant women to be suffering from malaria. Even if most of the respondents 727 (95.8%) thought that malaria treatable, only 183 (24.1%) correctly mentioned the names of the currently used anti-malaria drugs, Co-atem and chloroquine.

Table 3: Knowledge and perception about malaria transmission in rural communities of Dire Dawa Administration, Dire Dawa, 2009.

Variable (n=759)	Frequency	Percent
Malaria transmitted from person to person		
Yes	316	41.6
No	366	48.2
Don't know	77	10.2
Main transmission mechanism of malaria		
Mosquito bite	202	26.6
Mosquito bite and other	57	7.5
Other than mosquito bite	57	7.5
Don't know	443	58.4
Sign and symptom of malaria [a]		
Fever	675	88.9
Shivering/chills	325	42.8
Sweating	174	23.0
Headache	411	54.1
Vomiting	134	17.6
Loss of appetite	78	10.3
Bitterness of moth	24	3.2
Backache	137	18.0
Joint pain	58	7.6
Don't know	11	1.4

[a] Percents totally exceed 100% because of multiple response

Almost all, 755(99.5%) of the respondents were heard of the name mosquito net. Sleeping under mosquito net protect a person from mosquito bite and malaria; and nuisance insects were responded by 752(99.1%) and 751(98.9%) of the respondents respectively. 733 (96.6%) of the respondents had known malaria is preventable. Among these quite a large number of respondents, 619(81.6%) knows sleeping under mosquito net prevent malaria. However, only 339(44.7%) the households; and 538 (41.4%) of the LLINs were reported as being used by households. The rest 150(20%) practiced drainage of mosquito breeding area and 122(16%) did not practice any malaria prevention activities.

Table 4**:** Knowledge and practices about malaria prevention in rural Communities of Dire Dawa Administration, Dire Dawa, 2009

Variable (n=759)	Frequency	Percent
Malaria preventable		
Yes	733	96.6
No	19	2.5
Don't Know	7	.9
Knowledge of preventive measures [a]		
Sleeping under mosquito net	619	81.6
Spray houses with insecticides (DDT)	251	33.1
Drain mosquito breeding site	178	23.5
Others	341	50.0
Don't know	19	2.0
Practice of preventive measures [a]		
Use of mosquito net	339	44.7
Spray households by DDT	240	32.0
Drainage of mosquito breeding site	152	20.0
Others	211	28.0
Do nothing	122	16.0

[a] Percents totally exceed 100% because of multiple response

Two hundred forty-four (32.2%) of the respondents had a functional radio. Among, 147(19.4%) listening almost every day and 69 (9.1 %) listening at least once a week. Quite a large number of the respondents 515 (67.8%) were no functional radio in their houses. The respondents; who had heard about malaria prevention and control, obtained information from electronics media (radio and television), health professionals, school student, were; 18.4%, 20.4%, and 11.3% respectively. About half of the respondents were deprived of the source of information on malaria prevention and control in the last three months. (Table 5)

Table 5: Source of information on malaria control and prevention of rural communities of Dire Dawa Administration, Dire Dawa, 2009.

Variable (n=759)	Frequency	Percent
Functional radio		
yes	244	32.2
No	515	67.8
Frequency of listening		
Almost every day	147	19.4
At least once a week	69	9.1
Less than once a week	3	0.4
Not at all	540	71.2
Source of information		
Electronics media	140	18.4
Health professionals	155	20.4
School student	86	11.3
Nothing	378	49.8

LLINs possession and utilization

Two hundred sixty- six (35.0%) households were supplied with one LLIN, 448(59.0%) with two, 43(5.7%) with three, and 2 (0.3%) with four LLINs. In total, 1299 LLINs were supplied to the households included in this study. Of these, 538 (41.4%) LLINs were reported as being used by households. Mean possession was 1.7 LLINs per household.

Persons reporting sleeping under LLINs the previous night were 29.5 % overall; 419 (45.6%) under-five children, and 50(83.3%) pregnant women respectively.

Concerning the condition of LLINs, 160(21.1%) were in good condition meaning that there is no hole and tear, the majority of the LLINs, 547 (72.0%) were in bad condition which consists of holes and tears. Reason for not using the available LLINs in the households 65.1% mentioned that the net was old and lost and 14.1% mentioned that washed out its chemicals. (Table 6)

Table 6: LLIN possession and utilization in rural communities of Dire Dawa Administration, Dire Dawa , 2009

Characterstics	Frequency	Percent
LLINs possesion		
One/household	266	35.0
Two/household	448	59.0
Three/household	43	5.7
Four/household	2	0.3
Reported situation of LLINs		
Currently used	339	44.7
Not used	420	55.3
Children under- five years age slept under LLINs		
Yes	419	45.6
No	499	54.4
Pregnant women slept under LLINs in previous night		
Yes	50	83.3
No	10	16.7
Reasons for not using LLINs (n=420)		
Old/lost	274	65.1
Washed out chemicals	62	14.7
It gives too warm	43	10.2
Tucking the net every night boring	12	2.9
Does not prevent malaria	9	2.1
Not convenient while sleeping	8	1.9
No adequate space	7	1.7
Mosquito bite through it	5	1.4

Determinants of LLINs utilizations

Availability of separated bed and mat (Adjusted OR=2.04, 95% CI: 1.46, 2.85) and Status of LLINs (Adjusted OR=21.65, CI: 12.14, 38.61) were associated to the use of the available LLINs in their households. In addition, colours of the LLINs were significantly associated with non-utilization of LLINs by households. Age, family monthly income, educational status, number of LLINs supplied, date when LLINs supplied, and shape of LLINs were not associated with the use of LLINs by the household when adjusted with the other factors. (Table 7)

Table 7: Comparison of Selected Socio- demographic charactestics and utilization of LLIN in rural Communities of Dire Dawa Administration , Dire Dawa,2009

variables	Utilization of LLINs		Crude odds ratio (COR 95% CI)	Adjusted odds ratio(AOR 95CI)
	Yes(n=339)	No(n=420)		
Age				
15-29	132	158	1.48(0.91, 2.43)	1.44(0.82,2.53)
30-45	175	205	1.52(0.94, 2.45)	1.26(0.70,2.26)
>45	32	57	1.00	1.00
Family monthly income				
< 100 birr	29	36	1.00	1.00
100 to 200 birr	188	264	0.88 (0.52,1.49)	0.70(0.38,1.29)
201-300birr	58	69	1.04(0.57,1.90)	0.58(0.28,1.19)
>300	64	51	1.55 (0.84,2.87)	1.13(0.55,2.33)
Education of the respondent				
Literate	96	79	1.70(1.21,2.39)*	1.08(0.69,1.68)
Illiterate	243	341	1.00	1.00
Separated bed room				
One bed	168	283	1.00	1.00
Two bed and above	171	137	2.10(1.56 , 2.82)*	2.04(1.46,2.85)*

*p value <0.05

variables	LLINs utilization		Crude odds ratio (COR)	Adjusted odds ratio (AOR)
	Yes(n=339)	No(420)		
Number of LLINs				
One	125	141	1.00	1.00
Two	196	252	0.87(0.64,1.19)	0.90(0.61,1.32)
Three	18	27	0.81(0.42,1.55)	0.72(0.32,1.59)
Date when LLINs obtained				
One month to one year	27	11	1.74(1.19, 2.55)*	1.61(0.94,2.49)
13 months to two years	72	60	3.56(1.73,7.33)*	2.15(0.89,5.19)
25 months and above	240	349	1.00	1.00
Shape of LLINs				
Rectangular	155	151	1.29 (0.71,2.36)	1.14(0.53,2.43)
Conical	76	103	1.19(0.79,1.78)	0.74(0.44,1.25)
Rectangular/ conical	24	30	1.66(1.16,2.36)	1.61(1.01,2.55)
Any shape	84	136	1.00	1.00
Colour of LLINs				
White	20	7	1.00	1.00
Green	125	147	4.10(1.64.10.22)*	0.34(0.12,0.94)*
Blue	78	94	1.22(0.83,1.79)	0.30(0.10,0.85)*
Green and blue	45	70	1.19(0.77,1.82)	0.32(0.10,0.94)*
Any colour	71	102	0.92(0.57,1.49)	0.28(0.09,0.82)*
Status of the net				
Good	146	14	21.93(12.35,38.96)*	21.65(12.14,38.61)*
Poor	193	406	1.00	1.00

*p value <0.05

Discussion

The out come variable of this study was LLINs utilization in the rural communities of Dire Dawa administration, and the independent variables for LLINs utilization were: age, family monthly income, educational status, availability of separated bed/mat, number of LLINs supplied, date when LLINs supplied, shape, colour, , and status of LLINs .

The study sample compare to MIS was larger; this may yield more precise point estimates of variables amenable to survey measurement for the Administration. This study was mainly focuses on net utilization and factors associated to its use. Understanding of the issue helps for effective program and communication strategies for increase in utilization can be achieved. In the other hand, the major limitation of this study was that reported use of LLINs by households was simply taken without any means of verifications. Further study using direct observation at sleeping time rather than reported use is important to assess proper utilization. Since this study was done during the dry season, during which malaria transmission was low, the community may not use the LLINs properly.

With respect to the cause of malaria, twenty- seven percent of the respondent implicated mosquito bite as a possible cause of malaria and indicated that people are infected with malaria by the bite of infected mosquitoes. This finding was very small comparing to elsewhere (28). The study Participants included in latter study were mainly from the urban areas unlike the Dire Dawa study population were totally from the rural dwellers. In addition, different interventions particularly those made to raise the awareness of the community about malaria and its control in the urban areas could be a possible explanation for the high awareness of malaria.

Respondent's perception of net use as a main malaria prevention method was mentioned by, eighty two percent in this study. This is in line with the study conducted in WonagoWoreda,

Southern Ethiopia (27). Even though, majority of the respondents mentioned correctly malaria prevention and control methods; the practice of the methods were so small compared to its knowledge. Use of mosquito net ; spray the household with insecticide (DDT), drainage of mosquito breeding site were practiced compared to knowledge showed that, 44.7% versus 81.5%,33.0% versus 32.0% and 23.5% versus 20.0 % respectively.

Most of the respondents thought that malaria was treatable, only a quarter of the population correctly mentioned the name of currently used anti-malaria drugs, Co-atem and chloroquine. These could be explained by most of the study subjects were illiterate; and as a decline in observed malaria cases.

The number of LLINs supplied to household in this study showed that mean possession was 1.7 LLINs per household. This is higher than the study conducted elsewhere (26).Among the population with particular vulnerability to malaria, the under- five years old and pregnant women, sleeping under LLINs the previous night were reported for, 419 (45.6%) and 50(83.3%), respectively in the Administration. These finding was lower than the finding obtained from malaria indicator survey, which accounts nationally for under -five children (59.1%), and for Dire Dawa (57.7%). while with respect to pregnant women the utilization of LLINs nationally less than the Administration findings 100% versus 83.0% respectively (13).

Many nets, had holes and breaks. Even nets less than a year old had holes and tear because of children, animals, and wear and tear associated with having the net in the living space. Most nets were extremely dirty, covered with dust and soot. In thatched-roof homes, dirt and debris falls regularly; some people like nets for protection from falling dirt. Where cooking is done in the same space as the sleeping area, smoke and soot settle on the net daily. Nets in poor condition

tended to be stashed under beds or into corners, not in good enough condition to use, but not bad enough to be thrown away, though we did see some that had been thrown outside.

Our finding revealed that availability of separated rooms increased the use of LLINs by households, which is in line with the study conducted Wonago Woreda, Southern Ethiopia (27). This implies that the type of nets distributed should also match the structure of the houses and rooms. Some times, it may very difficult to hang nets. The traditional rounded houses (*tukuls*) present special problems for hanging nets. The round structure with a conical roof with a high point in the center makes it especially difficult to find four hanging points for a rectangular net. Furthermore, in most *tukuls*, there is not space for more than one net. Many *tukuls* are small to begin with, and most devote roughly 1/3 of the space for keeping animals at night. Even one net can take up most of the living space inside the house, and it is not feasible to put up and take down a rectangular net daily.

The other determinant factor for the utilization of LLIN like Age, family monthly income, educational status, number of LLINs supplied, date when LLINs supplied, and shape of LLINs were not associated with the use of LLINs by the household when adjusted with the other factors. The possible reason for this may be all respondents were from rural areas, so that their housing construction, family monthly income, and educational status were somewhat similar.

Conclusions

In conclusion, the survey indicated that high ownership and knowledge about malaria prevention and control; the critical challenge is to overcome barriers to utilization and drive up usage rates. There are varieties of barriers to overcome. Some are structural, some involve program changes, and others require strategic communication.

The structural barriers pose special challenges, the fact that small traditional houses can fit only one net, or that nets do not reach the children's sleeping mat on the floor cannot be remedied by individual or even community behavior change. Overcoming these obstacles will require product modifications and other creative remedies.

Program changes include measures such as assuring that standardized, accurate information is given out along with the nets, confusion about treating-re-treating is understandable, given the different types of nets available and prior emphasis on re-treatment before LLINs were available. Now that all free nets are LLINs, standard information can be given during distribution. Messages regarding LLINs, specifically how long the LLINs are used, are the key, along with a statement about maximum washing frequency. Community members also need to know how to hang the net properly. Demonstration and/or assistance with hanging should also be provided. It is also important to communicate that as many family members as possible should sleep under a net and that the net should be used year-round.

Recommendations

Finally, most LLINs were distributed more than two years before and in a bad condition therefore, it is recommended that:

- Verbal communication during distribution should be complemented with tested flyers or posters with key messages as back-up reference.
- During replacement of LLINs, Health extension workers as well health professionals should strengthen health education activities about the benefit and utilization of LLINs to the community.

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Annexes: Consent (English and Amharic)

Assessment of utilization of Insecticide Treated Nets (ITNs) and its associated factors in Rural Communities of Dire Dawa Administration, Eastern Ethiopia

Peasant Association _____Village Name _____ Code number_____

Informed Consent

[*Interviewer: Read the following introductory statement to the prospective respondent]*.

Hello. My name is _____ and I am working with Dire Dawa Administration Health Bureau. We are conducting a survey on ITNs and, or LLINs utilization in this village. (Show a letter of approval from the Regional Health Office, if necessary). We are interested in learning how people feel and perceive about malaria due emphasis on nets utilizations. We are also interested to know what people do to protect themselves and family against malaria. We are interviewing many different communities and households in these Villages. We would very much appreciate your participation in this survey. I would like to ask you some questions about malaria that would take between 20 and 30 minutes to complete. This information will help the Regional Health Bureau to plan malaria prevention and control interventions.

Whatever information you provide us will be kept strictly confidential. Your name and address will remain anonymous. Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this survey since your views are important.

At this time, do you want to ask me anything about this survey?

Name and signature of interviewer: _____ Date:_____

Would you be willing to be interviewed? 1. No (Stop the interview) 2. Yes

If "No", please state the reason: _____

Start time**:**_____ End time**:**_____

በድሬዳዋ አስተዳደር በገጠር የሚገኙ የቀበሌ ገበሬ ማህበርን በኬሚካል የተነከረ አልጋ አጎበር አጠቃቀምን በተመለከተ ና በአጎበሩ ያለ መጠቀም ምክንያቶን የሚዳስስ ጥናት

ቀበሌ ገበሬ ማህበር----------የመንደር ስም----------የመረጃ ቁጥር-----

<u>የፍቃደኝነት ማረጋገጫ</u>

(ጥያቄዎን ከማቅረብዎ በፊት ይህን የፈቃደኝነት ማረጋገጫውን ያንብቡላቸዉ)

ጤና ይስጥልኝ፣ ኔ ስሜ---------- የተባልኩ በድሬዳዋ መስተዳድር ጤና ቢሮ ዉስጥ የምስራ ስሆን በመስተዳድሩ ስር በሚገኙ የቀበሌ ገበሬ ማህበራት ዉስጥ ስላለዉ የአልጋ አጎበር ሁኔ ጥናት በመካሄድ ላይ ንገኛለን (ከጤና ቢሮ ጥናቱ ንዲካሄድ የተፈቀደዉን መረጃ ወረቀት ማየት የሚፈልጉ ከሆነ ንዲመለከቱ ያድርጉ)

በዚህ ጥናት ለማወቅ የተፈለገዉ ህብረተሰቡ ስለ ወባ በሽ ያለዉን ግንዛቤ ሲሆን በተለይ ስለ አልጋ አጎበር ያለዉን ግንዛቤ ይመለከ ል። በተጨማሪም ህብረተሰቡ ራሱን ከወባ በሽ ንደሚከላከል ለማዬት ንሞክራለን።ለዚህ ጥናትም በአካባቢዎ የሚገኙትን የተለያዩ የህብረተሰብ ክፍሎችንና ቤቶችን ንጎበኛለን።

በጥናቱ ላይ የርስዎ መሳተፍ ጠቀሜ ያለዉ ሲሆን የሚሰጡንም መረጃ ለመስተዳደሩ የወባ በሽ ን ለመከላከልና ለመቆጣጠር የምናደርገዉን ጥረት ያግዘናል። ለጥናቱ የተዘጋጁትን ጥያቄዎች ለመመለስ የሚፈጅብዎ ግዜ ከ20-30 ደቂቃ ብቻ ነዉ።

ማንኛዉም የሚሰጡት መረጃ በሚስጥር የሚጠበቅ ሲሆን ለሌላ ሰዉም ተላልፎ አይሰጥም።በጥናቱ ላይ መሳተፍ በፍቃደኝነት ላይ የተመሰረተ ሲሆን ጥናቱን በከፊል ወይም በሙሉ አለመመለስ መብትዎ የተጠበቀ ነዉ። በመጨረሻ በጥናቱ ላይ ንደሚሳተፉ በማመን ሊጠይቁኝ የሚፈልጉት ጥያቄ ካልዎት ሊጠይቁኝ ይችላሉ። ጥያቄ ከሌልዎት ጥያቄዉን አሁን መጀመር ንችላለን?

ጥያቄዉን ያቀረበዉ ስምና ፊርማ----------

ቀን----------

ፍቃደኛ ነዎት? አዎ ↓ 1
ፍቃደኛ አይደለሁም------2 በጥናቱ አይካተቱም
ፍቃደኛ ያልሆኑበትን ምክንያት ይጠይቋቸዉ----------

የተጀመረበት ሰዓት---------- የተጠናቀቀበት ሰዓት----------

Study data collection tools. (English and Amharic)

Section 1: Socio-demographic characteristics of the respondents

No.	Questions and filters	Coding categories	Skip to
1	Sex of the respondent:	Male 1 Female 2	
2	Head of the household:	Male 1 Female 2	
3	Status of the respondent in the household:	Head of the household 1 Spouse of the head of the household 2 Son or daughter 3 Other (specify) _____ 4	
4	What is your age in years?	Year [___|___]	
5	What is your religion?	Islam 1 Orthodox Christian 2 Catholic Christian 3 Protestant Christian 4 Other (specify)_____ 5	
6	What is your ethnic group?	Oromo 1 Somali 2 Amhara 3 Other (specify)_____ 4	
7	What is your current marital status? *[If the respondent is a woman and her husband has currently more than one wife, the answer for this question*	Married (monogamous) 1 Married (polygamous) 2 Never married (single) 3 Divorced 4 Widowed 5 Separated 6	

	is 2].		
8	Have you ever attended school?	Yes 1 No 2	 →10
9	If "**Yes**" to Q8, what is the highest level of school or grade you attended or completed?	Can only read and write 1 Koran 2 Elementary school (1-4) 3 Junior secondary school (5-8) 4 Senior secondary school (9-12) 5 Other (specify)_____ 6	
10	Are you currently working?	Yes 1 No 2	 →12
11	What is your current main work/occupation? • ***Chose only one response***	Housewife 1 Farmer 2 Livestock rearing (pastoralist) 3 Student 4 Daily labourer 5 Trader 6 Other (specify)_____ 7	
12	Does your household have:	**Yes** **No** Electricity supply? 1 2 Telephone including mobile? 1 2 Refrigerator? 1 2 Lantern? 1 2 Water storage plastic jerry can? 1 2 Pit latrine? 1 2	
13	How many people generally live in this household, including you?	Total No. [____] No. of children below 5 years [___] No. of pregnant women [___]	
	How many member of this household	Total No. [____]	

14	slept in this house in the previous night [indoors and outdoors]?	No. of children below 5 years [___] No. of pregnant women [____]	
15	What is the health care facility that is nearest to you?	Health post/station 1 Health center 2 Public/private hospital 3 Private clinic 4 Other (specify)_____ 5 Don't know 6	
16	How far does it take from your home to reach the nearest public health care facility in minute?	Minute [_____]	
17	Is the primary living house shared with livestock during night?	Yes 1 No 2	
18	What is the main source of drinking water for members of your household? • ***Chose only one response***	Pond 1 Protected well 2 Unprotected well 3 Protected spring 4 Unprotected spring 5 Piped (tap) 6 River 7 Irrigation canal 8 Other (specify) _____ 9	
19	Can you tell me the average family monthly income of this household?	Birr [_____]	
20	How many sleeping places (beds, mats, etc) does your household have indoors and outdoors	Total [_____] Indoor [_____] Outdoor [_____]	

Section 2: Knowledge and perceptions about malaria transmission and treatment

No.	Questions and filters	Coding categories	Skip to
21	What are the three most important health problems in this area? • ***Don't read the list*** • ***Circle only three responses that apply***	Malaria 1 Diarrhea 2 Respiratory diseases including TB 3 Gastro-intestinal diseases 4 Malnutrition 5 HIV/AIDS 6 Skin diseases 7 Other (specify) _____ 8 Note sure/don't know 9	
22	Do you consider malaria a major health problem in this community?	Yes 1 No 2	
23	Can malaria be transmitted from one person to another?	Yes 1 No 2 Don't know 3	
24	How can a person acquire malaria? • ***Don't read the list*** • ***Circle all responses that apply***	By breathing 1 By mosquito bite 2 By sleeping with a malaria patient/ body contact 3 By drinking dirty water 4 Being exposed to cold air 5 Exposure to dirty swampy areas 6 Other (specify) _____ 7 Don't know 8	
25	When do mosquitoes usually bite a person?	Day 1 Evening 2 Night 3 Day and night 4	

		Don't know 5	
26	What are the main signs and symptoms of malaria? • ***Don't read the list*** • ***Circle all responses that apply***	**Yes** **No** Fever 1 2 Shivering/chills 1 2 Sweating 1 2 Headache 1 2 Vomiting 1 2 Loss of appetite 1 2 Bitterness in the mouth 1 2 Weakness/tiredness 1 2 Splenomegally 1 2 Backache 1 2 Convulsion 1 2 Thirsty 1 2 Joint pain 1 2 Don't know 1 2 Other (specify)_____	
27	To which group of the population malaria is more serious? • ***Circle only one response***	Adults 1 Children 2 Pregnant women 3 Elderly 4 Pregnant women/children 5 Equally serious for all 5 Don't know or not sure 6	
28	Is malaria a treatable disease?	Yes 1 No 2 Don't know or not sure 3	
29	What is the name of the currently used new antimalarial drug?	Chloroquine 1 Fansidar 2 CoArtem 3 Quinine 4	

	• ***Circle only one response***	Other (specify)_____ 5 Don't know 6	

Section 3: Knowledge and practices about malaria prevention

No.	Questions and filters	Coding categories	Skip to
30	Is malaria a preventable disease?	Yes 1 No 2 Don't know 3	
31	What are the different malaria preventive measures that you know? • ***Don't read list.*** • ***Circle all responses that apply***	To eat good food 1 To keep house clean 2 Remain indoors at night 3 To sleep under a mosquito net 4 To spray house with insecticide (DDT) 5 To spray house with aerosols 6 Smoking in the house 7 Apply ointment/repellents on the skin 8 Drain mosquito breeding sites 9 Window screening 10 Other (specify)_____ 11 Don't know 88	
32	What do you or your family members currently do to prevent mosquito biting? • ***Don't read the list*** • ***Circle all responses that apply***	Use aerosols to spray the house to kill mosquitoes 1 Close doors and windows on time before evenings 2 Use mosquito nets 3 Spray the household by DDT 4 Block mosquito entry holes to houses 5 Burn dung or leaves to keep mosquitoes away 6 Drainage of mosquito breeding sites nearby the house 7	

		Do nothing 8 Others(specify)_____ 9	

Section 4 :Sources of information on malaria

No.	Questions and filters	Coding categories	Skip to
33	Does your household have a functional **radio** now?	Yes 1 No 2	
34	Do you listen to the radio almost every day, at least once a week, less than once a week or not at all?	Almost every day 1 At least once a week 2 Less than once a week 3 Not at all 4	
35	In the last 3 months, have you heard or read about malaria: On the radio? On the television? From health extension worker? From health professionals? In a newspaper/magazine/pamphlet? From school students? From mosque or church? • ***Probe and circle all that apply from the list***	**Yes** **No** On the radio 1 2 On the television 1 2 From health extension worker 1 2 From health professionals 1 2 Newspaper/magazine/pamphlet 1 2 From school students 1 2 From mosque or church 1 2 Other (specify) _____1 2	

Section 5: Treatment seeking behaviour for malaria

No.	Questions and filters	Coding categories	Skip to
36	Where do you initially go when you or your family members are sick from malaria?	Govt Health institution 1 NGO Clinics 2 Private clinic 3 Pharmacy/drug vendor 4 CHWs 5 Self-medication 6 Traditional healer 7 Use traditional remedies at home 8 Holly water/Holly places 9 Other (specify)_____ 10 Don't know 88	
37	Has any member of the household had malaria (febrile illness) in the previous two weeks?	Yes 1 No 2 Don't know 3	 **ì 45** **ì 45**
38	If Yes to **Q37**, how many of the household members were sick from febrile illness suspected to be malaria?	Total No. [_____] No. of children below 5 years [___] No. of pregnant women [___]	
39	If Yes to **Q37**, what is the sex of the patient? ***[Consider the recent episode of malaria (febrile illness)].***	Male 1 Female 2	
40	If Yes to **Q37**, what is the age of the patient? ***[Consider the recent episode of malaria (febrile illness)].***	Year [___] Month [___] Don't know 88	
41	Did the patient seek treatment during the malarial	Yes 1	

	attack?	No 2	ì **44**
42	If Yes to **Q41**, where did the patient initially seek treatment?	Govt Health institution 1 NGO Clinics 2 Private clinic 3 Pharmacy/drug vendor 4 CHWs 5 Self-medication 6 Traditional healer 7 Used traditional remedies at home 8 Holly water/Holly places 9 Consumed camel's milk 10 Other (specify)_____ 11 Don't know 88	
43	How many days (hours) passed between when symptoms appeared and initial treatment sought?	_____ day (s) _____ hour (s)	
	If Q42 and 43 are answered, skip to Q45		
44	If treatment was not sought, for the household member with the recent malaria illness, what was the main reason for not seeking treatment? • ***Circle only one answer***	The illness was mild 1 Financial constraint 2 Health facilities too far 3 Shortage of time due to workload 4 Antimalarial drugs are very expensive 5 Antimalarial drugs not available 6 Planning to visit health care 7 Other (specify)_____ 8 Don't know 9	

Section 6: Mosquito net knowledge, possession and utilization

No.	Questions and filters	Coding categories	Skip to
45	Have you heard the name "***mosquito net***"?	Yes 1 No 2	
46	Can sleeping under "***mosquito net***" protect a person from mosquito bite?	Yes 1 No 2	
47	Can sleeping under "***mosquito net***" protect a person from the bite of other nuisance insects?	Yes 1 No 2	
48	Can "***treated mosquito net***" kill mosquitoes?	Yes 1 No 2 Don't know 3	
49	Can sleeping under "***mosquito net***" protect a person from malaria?	Yes 1 No 2	
50	In your opinion, what is the average duration of "***mosquito net***" to be used in years?	Year [____]	
51	Do you know of a place where you can get a "***mosquito net***"?	Yes 1 No 2	→53
52	If **Yes** to **Q51** , where is that? • ***Circle all that apply***	Government hospital 1 Government health center 2 Woreda Health Office 3 Health post/station 4 Private health care facility 5 Pharmacy/drug store 6 Shop 7 Market 8 Other (specify) _____ 9	
	Does your household currently have any	Yes 1	

53	mosquito nets that can be used while sleeping?	No 2	ì 75
54	How many mosquito nets do you currently have [both used and unused]? ***[Enumerator: Please ask the respondent and observe the number and situation of total nets in the household].***	_____	
55	How many of the nets the household have are hanged over the bed/mat during the interview?	_____	
56	How many of the nets the household have are currently used by household members while sleeping?	_____	
57	Did any member of your household (including you) sleep under **a treated mosquito** net last night?	Yes 1 No 2	
58	Did any member of your household (including you) sleep under **a long lasting mosquito** net last night?	Yes 1 No 2	
59	How many of the people who slept in this household in the previous night slept under a net, including you [indoors and outdoors]?	Total No. [_____] No. of children below 5 years [___] No. of pregnant women [___]	
60	How long ago did your household obtain the most recent mosquito net?	Year [___] and [___] month	
61	Where did you obtain the most recent net you currently have?	Provided by health facility 1 Provided by CHWs 2 Provided by NGO 3	

		Bought from market/shop 4 Other (specify) _____ 5 Don't know 6	
	Questions 62 to 68 should be filled through observation		
62	Observe or ask the type of the Net	LLINs number [_____] ITNs number [_____] Don't know [_____]	
63	Please record or ask the general condition of Net	Good (no holes) 1 Poor (1-4 holes) 2 Unsafe (>5holes) 3 Unused (still in package) 4 Unknown 5	
64	How many of the nets the household have are **rectangular**?	_____	
65	How many of the nets the household have are **conical**?	_____	
66	How many of the nets the household have are **white**?	_____	
67	How many of the nets the household have are **green**?	_____	
68	How many of the nets the household have are **blue**?	_____	
	The following questions are supposed to be filled through interview		
69	What **shape** of the net do you most prefer?	Rectangular 1 Conical 2 Rectangular/conical 3 Any shape 4 Don't know 5	

70	What **colour** of the net do you most prefer?	White 1 Green 2 Blue 3 Green and blue 4 Any colour 5 Other (specify) _____ 6	
71	If you have only one "**mosquito net**", whom would you allow to use it? • ***Circle only one answer***	Husband 1 Wife 2 Husband and wife 3 Wife with youngest child 4 Young children 5 Elderly/grand parents 6 Pregnant women 7 Other (specify)_____ 8 Don't know 9	
72	Do you need additional nets or replaced by new one?	Yes 1 No 2	
73	Have you ever experienced any problems when using "***mosquito nets***"?	Yes 1 No 2	ì **Stop**
74	If **Yes** to **Q73**, what problems have you or your family members experienced? • ***Circle all that apply***	It gives too warm to sleep under it 1 Mosquitoes still bite you through it 2 Inconvenient to easily get up during night 3 Tucking the net every night is boring 4 It gives you skin irritation 5 Other (specify)_____ 6 Don't know 7	
	Q75 and Q76 will be completed for households without any mosquito net		

75	If your household has currently no mosquito net, have your household ever had it before?	Yes 1 No 2	
76	If your household has no mosquito net, what are the reasons for not having it? • ***Don't read the list*** • ***Circle all responses that apply***	Not convenient while sleeping 1 Not aware of its use 2 Not know where to get it 3 It is unavailable 4 It has a side effect since treated 5 Does not prevent malaria 6 Has become old or lost 7 Not adequate space to hang it in the house 8 Other (specify) _____ 9 Don't know 88	

That is the end of our interview. Thank you very much for taking time to answer our questions. We appreciate your help.

	Name	Signature	Date
Data collector	_____	_____	_____
Supervisor	_____	_____	_____

ክፍል 1. የተጠያቂዉ ወይም ተጠያቂዋ ማህበረሰባዊ አጠቃላይ መረጃ

ቁጥር	ጥያቄዎች ና መለያዎች	ጠቋሚ ክፍል	ወደሚቀጥለዉ
1	የተጠያቂዋ ወይም ተጠያቂዉ ጸ	ወንድ 1 ሴት 2	
2	የቤቱ ተጠሪ ወይም ሃላፊ	ወንድ 1 ሴት 2	
3	የተጠያቂዉ/ዋ ላፊነት በቤቱ ዉስጥ	የቤቱ ላፊ አባወራ 1 የቤቱ ላፊ መወራ 2 ልጅ (ወንድ ወይም ሴት) 3 ሌላ ከሆነ ይጥቀሱ _____ 4	
4	ድሜዎ ስንት ኣመት ነዉ?	አመት [___|___]	
5	ሐይማኖትዎን ቢገልጹልኝ?	ስላም 1 ኦርቶዶክስ ክርስቲያን 2 ከቶሊክ ክርስቲያን 3 ፕሮቴሰ ንት ክርስቲያን 4 ሌላ ከሆነ ይግለጹ_____ 5	
6	ብሄረሰብዎን ቢገጹልኝ?	ኦሮሞ 1 ሶማሌ 2 አማራ 3 ሌላ ከሆነ ይግለጹ _____ 4	
7	በአሁን ሰዓት ያልዎት የጋብቻ ሁኔ ቢገልጹልኝ? *[ተጠያቂዋ ሴት ከሆኑና ባላቸዉ ከአንድ በላይ ሚሰት ካላቸዉ ቀጥር ሁለትን ያክብቡ].*	ያገባ (አንድ ወንድ ከአንድ ሴት) 1 ያገባ (ከአንድ ሚስት በላይ ያገባ) 2 ያላገቡ (ብቸኛ) 3 የተፋቱ 4 ባሏ የሞተባት ሴት 5 የተለያዩ ቦ የሚኖሩ **6**	
8	ትምህርት ተምረዉ ያዉቃሉ?	አዎ 1 አልተማርኩም 2	→***10***
9	ለቁጥር 8 መልስዎ አዎ ከሆነ የደረሱበት ወይም ያጠናቀቁት የትምህርት ደረጃ?	ማንበብና መጻፍ ብቻ 1 ቁራን 2 የመጀመሪያ ደረጃ ትምህርት(ክፍል 1-4) 3 መከከለኛ ደረጃ ትምህርት (ክፍል 5-8) 4 ከፍተኛ ሁለተኛ ደረጃ ትምህርት (ክፍል 9-12) 5 ሌላ ከሆነ ይግለጹ_____ 6	
10	በአሁን ሰኣት በስራ ላይ ይገኛሉ?	አዎ 1 አልሰራም 2	→***12***
11	በአሁን ሰኣት በምን ስራ ላይ ይገኛሉ ወይም ስራዎን ቢገልጹልኝ? • ***አንዱን ብቻ ይምረጡ***	የቤት መቤት 1 ገበሬ 2 ከብት አርቢ 3 ተማሪ 4 የቀን ሰራተኛ 5 ነጋዴ 6 ሌላ ከሆነ ይግለጹ _____ 7	
12	በቤትዎ ዉስጥ ነዚህ የተጠቀሱ ይገኛሉ ?	<u>አዎ</u> <u>የለም</u> የኤሌትሪክ ይል ? 1 2 ቴሌፎን (የቤት ና ሞባይል) ? 1 2 ማቀዝቀዣ ? 1 2 ፋኖስ ? 1 2 የዉ ማስቀመጫ ጀሪካን ? 1 2 የጉድጓድ መጸዳጀ ቤት ? 1 2	

13	ርስዎን ጨምሮ በቤቱ ዉስጥ ምን ያህል ሰዎች ይኖራሉ?	አጠቃላይ በቁጥር [____] ከአምስት አመት በ ች ያሉ ህጻናት ብዛት በቁጥር [___] የነፍሰ ጡር ናቶች በቀጥር [___]	
14	ባለፈዉ ሌሊት በቤት ዉስጥ ካሉት የቤተሰብ አባላት ምን ያህሉ በዚህ ቤት አድረዋል [በቤት ውስጥ ና ከቤት ዉጭ]?	አጠቃላይ በቁጥር [____] ከአምስት አመት በ ች ያሉ ህጻናት ብዛት በቁጥር [___] የነፍሰ ጡር ናቶች በቀጥር [____]	
15	በአቅራቢያዎ የሚገኝ የጤና ድርጅት ካለ ቢገልጹልኝ?	የጤና ኬላ ወይም ክሊኒክ 1 የጤና ጣቢያ 2 የመንግስት ወይም የግል ሆስፒ ል 3 የግል ክሊኒክ 4 ሌላ ካለ ይገለጹ_____ 5 አላዉቅም 6	
16	በአካባቢዎ ለሚገኝ የመንግስት የጤና ድርጅት ለመድረስ ከቤትዎ ምን ያህል ደቂቃዎች ይወስድቦ ል ?	ደቂቃ [_____]	
17	በማደሪያዎ ከብቶች አብረዉ ያድራሉ?	አዎ 1 አያድሩም 2	
18	የቤተሰብዎ አባላት ለመጠጥ ዉ የሚጠቀሙት ከየት ነዉ? • *አንዱን ብቻ ይምረጡ*	ኩሬ 1 በአግባቡ የተጠበቀ ምንጭ 2 በአግባቡ ያልተጠበቀ ምንጭ 3 በአግባቡ የተጠበቀ ወራጅ ወንዝ 4 በአግባቡ ያልተጠበቀ ወራጅ ወንዝ 5 ቧንቧ 6 ወንዝ 7 የመስኖ ካናል 8 ሌላ ካለ ይገለጹ _____ 9	
19	የቤተሰብዎን አማካኝ የወር ገቢ ቢገልጹልኝ?	ብር [_____]	
20	የቤተሰብዎ አባላት ምን ያህል የመኝ ቦ ወይም አልጋ አላቸዉ(በቤት ዉስጥና ከቤት ዉጭ)	አጠቃላይ [_____] በቤት ዉስጥ [_____] ከቤት ዉጭ [_____]	

ክፍል 2. ስለወባ በሽ መተላለፊያና ህክምናዉ ያለዎት ዉቀትና አስተሳሰብ

ቁጥር	ጥያቄዎች ና መለያዎች	ጠቋሚ ክፍል	ወደሚቀጥለዉ
21	በአከባቢዎ ካሉት የጤና ችግሮች ዉስጥ ሶስት አቢይ የጤና ችግሮችን ቢገልጹልኝ? • *ዝርዝሮችን አያንቡብላቸዉ* • *ሶሰቱን ብቻ ያክብቡ*	ወባ 1 ተቅማጥ 2 የመተንፈሻ አካል በሽ ና ሳንባ ነቀርሳ 3 የሆድ ህመም በሽ ዎች 4 የምግብ ጥረት 5 ኤች.አይ.ቪ ኤድስ 6 የቆዳ በሽ 7 ሌላ ካለ ይግለጹ _____ 8 ርግጠኛ አይደለሁም ወይም አላዉቅም 9	
22	ወባ የህብረተሰቡ ወይም የአካባቢዎ የጤና ችግር ነዉ ብለዉ ያምናሉ?	አዎ 1 አይደለም 2	
23	የወባ በሽ ከአንድ ሰዉ ወደ ሌላ ሰዉ ይተላለፋል?	አዎ 1 አይተላለፍም 2 አላዉቅም 3	
24	የወባ በሽ ንዴት ንደሚተላለፍ ቢገልጹልኝ ? • *ዝርዝሮችን አያንቡብላቸዉ*	በትንፋሽ 1 በትንኝ ንክሻ 2 ከወባ በሽተኛ ጋር አብሮ በማደር 3 ቆሻሻ ዉ በመጠጣት 4 ለብርድ በመጋለጥ 5 ለረግረጋማ ቦ ዎች በመገለጥ 6	

	• ***የመለሷቸዉን መልሶች በሙሉ ያክቡባቸዉ***	ሌላ ካለ ይግለጹ _____ 7 አላዉቅም 8	
25	የወባ ትንኝ ንክሻ የም ደርገዉ ወይም የም ስቸግረዉ በምን ሰአት ነዉ?	በቀን 1 በምሽት 2 በማ 3 ቀንና ማ 4 አላዉቅም 5	
26	የወባ በሽ ዋና ዋና ምልክቶችን ቢገልጹልኝ? • ***ዝርዝሮችን አያንብብላቸዉ*** • ***የመለሷቸዉን መልሶች በሙሉ ያክቡባቸዉ***	**አዎ** **የለም** ትኩሳት 1 2 ብርድ ብርድ ማለትና ማንቀጥቀጥ 1 2 ማላብ 1 2 ራስም ት 1 2 ትዉከት 1 2 የምግብ ፍላጎት መቀነስ 1 2 አፋቸዉን የመምረር 1 2 ድካም መሰማትና መዛል 1 2 የጣፊያ ማበጥ 1 2 የወገብ ህመም 1 2 ማንቀጥቀጥ 1 2 የዉ ጥማት 1 2 የመገጣጠሚያ ህመም 1 2 አላዉቅም 1 2 ሌላ ከለ ይግላጹ_____	
27	ወባ የትኛዉን የህብረተሰብ ክፍል በከፍተኛ ደረጃ ያጠቃል ብለዉ ያስባሉ? • ***አንድ መልስ ብቻ ያክብቡ***	አዋቂዎችን 1 ልጆችን 2 ነፍሰ ጡር ናቶችን 3 በ ድሜ የገፉትን 4 ነፍሰጡር ናቶችና ልጆችን 5 ሁሉምንም በ ኩል ደረጃ ያጠቃል 5 አላዉቅም ርግጠኛ አይደለሁም 6	
28	ወባን ማከም ወይም ማዳን ይቻላል?	አዎ 1 አይቻለም 2 አላዉቅም አርግጠኛ አይደለሁም 3	
29	በአሁን ሰአት ወባን ለማከም የሚያገለግለዉን አዲሱ የወባ መድ ኒት ቢገልጹልኝ? • ***አንድ መልስ ብቻ ያክብቡ***	ክሎሮኪን 1 ፋንሲዳር 2 ኮአርተም 3 ኪዉኒን 4 ሌላ ካለ ይገለጹ_____ 5 አላዉቅም 6	

ክፍል 3. የወባ በሽ ን ለመከላከል የሚደረጉ ጥረቶችና የህብረተቡ ዉቀት

ቁጥር	ጥያቄዎችና ና መለያዎች	ጠቋሚ ክፍል	¨ወደሚቀጥለዉ
30	የወባ በሽ ን መከላከል ይቻላል ብለዉ ያስባሉ ?	አዎ 1 አይቻልም 2 አላዉቅም 3	
31	የወባ በሽ ለመከላከል ከሚደረጉ ጥረቶች የሚያዉቋቸዉን ቢገልጹልኝ? • ***ዝርዝሮችን አያንብብላቸዉ*** • ***የመለሷቸዉን መልሶች በሙሉ ያክቡባቸዉ***	ጥሩ ምግብ መብላት 1 ቤትን በንጽህና መያዝ 2 ከመሸ በቤት ዉስጥ መቀመጥ 3 በአጎበር ውስጥ መተኛት 4 ቤትን በኬሚካል ወይም ዲዲቲ መርጨት 5 ቤትን በፍሊት መርጨት 6 ቤትን በጭስ ማጠን ወይም ማጨስ 7 የወባ መከላከያ ቅባቶችን መቀባት 8 ለወባ የሚስማሙ ያቆሩ ዉ ሃችን ማፋሰስ 9 መስኮቶችን መሸፈን 10 ሌላ ካለ ይግለጹ_____ 11 አላዉቅም 88	
32	ርስዎ ወይም ቤተሰብዎ	ፍሊትን በመርጨት ትንኞችን በመግደል 1	

	በአሁን ሰአት ከወባ ንክሻ ለመከላከል የሚጠቀሙት ዘዴ ቢገልጹልኝ? • ***ዝርዝሮችን አያንቡብላቸዉ*** • ***የመለሷቸዉን መልሶች በሙሉ ያክቡባቸ*** ከቴሌቪዝንዉ •	ከመምሸቱ በፊት በርና መስኮቶችን መዝጋት 2 አጎበር መጠቀም 3 ቤትን በኬሚካል ወይም ዲዲቲ መርጨት **4** ትንኝ የሚገቡበትን ቀዳዳ መድፈን 5 ፍግ ወይም ቅጠሎችን በማጨስ ትንኝን ማባረር **6** በቤት አቅራቢያ የሚገኙ ያቆሩ ዉ ሃችን ማፋሰስ 7 ምንም አላደርግም 8 ሌላ ካለ ቢገልጹ)_____ 9	

ክፍል 4. ስለ ወባ በሽ መረጃ የሚያገኙበት ሁኔ

ቁጥር	ጥያቄዎች ና መለያዎች	ጠቋሚ ክፍል	ወደሚቀጥለዉ
33	በቤትሥ ዉስጥ በአሁን ሰአት የሚያገለግል ሬዲዮ አልዎት?	አዎ 1 የለንም 2	
34	ሬድዮን የሚጠቀሙበት ግዜ?	ሁልግዜ 1 በሳምንት አንድ ግዜ 2 ከሳምንት ባነሰ ግዜ 3 አልጠቀምም 4	
35	ባለፉት ሶስት ወራት ስለ ወባ በሽ ሰምተዋል ወይም አንብበዋል ከሬዲዮ? ከቴሌቪዥን? ከጤና ኤክስቴንሽን ባለሙያ? ከጤና ባለሙያ? ከጋዜጣ ከበራሪ ጹሁፎች? ከተማሪዎች? ከቤተክርስቲያን ወይም መስጊድ? • ***ፍንጭ በመሰጠት ምላሻቸዉን ያስፍሩ***	**አዎ የለም** ከሬዲዮ 1 2 ከቴሌቪዥን 1 2 ከጤና ኤክስቴንሽን ባለሙያ 1 2 ከጤና ባለሙያ 1 2 ከጋዜጣ ከበራሪ ጹሁፎች 1 2 ከተማሪዎች 1 2 ከቤተክርስቲያን ወይም መስጊድ 1 2 ሌላ ካለ ይገለጽ _____ 1 2	

ክፍል 5. ለወባ በሽ ህክምናን መፈለግ ወይም የመሻት ባህሪ

ቁጥር	ጥያቄዎች ና መለያዎች	ጠቋሚ ክፍል	ወደሚቀጥለዉ
36	ርስዎ ወይም ቤተሰብዎ በወባ በሽ ቢያዙ በቅድሚያ ወዴት ለህክምና ይሄዳሉ?	ወደመንግስት የጤና ድርጅት 1 መንግስ ዊ ወደአልሆኑ ክሊኒኮች 2 ወደ ግል ክሊኒክ 3 ወደ ፋርማሲ ወይም መድሐኒት መሸጫ 4 የአካባቢ ጤና ተጠሪ 5 ራስን ማከም 6 ወደ የባህል መድሀኒት አዋቂ 7 የባህል መድሃኒት በቤት ዉስጥ መጠቀም 8 ወደ ምንት ቦ ዎችና የ ምንት ፀበል 9 ሌላ ካለ ይግለጹ_____ 10 አላዉቅም 88	
37	ባለፈዉ ሁለት ሳምንት በቤትሥ ዉስጥ የወባ በሽ ወይም ትኩሳት ያጋጠመዉ አለ?	አዎ 1 የለም 2 አላዉቅም 3	ì **45** ì **45**
38	ለጥያቄ ቁጥር 37 መልስዎ አዎ ከሆነ ምን ያህል የቤተሰብዎ አባል ለትኩሳት ወይም ወባ ለሚመስል በሽ ተጋልጠዋል?	አጠቃላይ በቁጥር [_____] ህጻናት ከአምስት አመት በ ች [___]	

		ነፍሰጡር ናቶች በቁጥር [___]	
39	ለጥያቄ ቁጥር 37 መልስዎ አዎ ከሆነ የ ማሚዉ ያ ? *[በሁለት ሳምንት ዉስጥ ብቻ መሆኑን ያስ ዉሷቸዉ)*	ወንድ 1 ሴት 2	
40	ለጥያቄ ቁጥር 37 መልስዎ አዎ ከሆነ የ ማሚዉ ዕድሜ? *[በሁለት ሳምንት መሆኑን ያስ ዉሱ)*	አመት [___] ወር [___] አላዉቅም 88	
41	የ መመብዎ የቤተሰብ አባል የወባ ህክምና ለመወሰድ ፍላጎት ነበረዉ?	አዎ 1 የለዉም 2	↓ 44
42	ለጥያቄ ቁጥር 41 መልስዎ አዎ ከሆነ ማሚዉ ህክምና ለማግኘት ወዴት መሄድ አስቢል?	ወደመንግስት የጤና ድርጅት 1 መንግስ ዊ ወደአልሆኑ ክሊኒኮች 2 ወደ ግል ክሊኒክ 3 ወደ ፋርማሲ ወይም መድሐኒት መሸጫ 4 የአካባቢ ጤና ተጠሪ 5 ራሱን ለማከም 6 ወደ የባህል መድሀኒት አዋቂ 7 የባህል መድሃኒት በቤት ዉስጥ መጠቀም 8 ወደ ምንት ቦ ዎችና የ ምንት ፀበል 9 የግመል ወተት በመጠጣት 10 ሌላ ካለ ይግለጹ_____ 11 አላዉቅም 88	
43	የወባ በሽ ምልክቶች ከተከሰተብዎ ና ህክምና አስከ ወሰዱበት ግዜ ምን ያህል ቀን ወይም ሰአት ፈጅብዎ?	_____ ቀን _____ ሰአት	
	ጥያቄ ቁጥር 42 ና 43 ምላሽ ከሰጡ ወደ ጥያቄ ቁጥር 45 ይተላለፉ		
44	የቤተሰብዎ አባል ህክምናዉን ካልወሰዱ ያልወሰዱበትን ምክንያት ሊገልጹልኝ ይችላሉ? • ***አንድ ምላሽ ብቻ ያክብቡ***	ህመሙ መካከለኛ ጉዳት ብቻ ማድረሱ 1 የገንዘብ ችግር 2 የጤና ድርጅቱ ከፍተኛ ርቀት 3 በስራ ብዛት ሰአት ማጠር 4 የወባ መድ ኒት ዉድነት 5 የወባ መድሃኒት አለመኖር 6 በ ቅድ የጤና ተቋም ለመጎብኘት 7 ሌላ ካለ ይግለጹ_____ 8 አላዉቅም 9	

ክፍል 6 ስለ አጎበር ያላቸዉ ዉቀት በቤት ዉስጥ ያለዉ የአጎበር ብዘት ና አጠቃቀም

ቁጥር	ጥያቄዎች ና መለያዎች	ጠቋሚ ክፍል	ወደሚቀጥለዉ
45	ከዚህ በፊት ስለ ወባ መከላከያ አጎበር ሰምተዉ ያዉቃሉ?	አዎ 1 አልሰማሁም 2	
46	በወባ መከላከያ አጎበር ወስጥ መተኛት ሰዉን ከትንኝ ንክሻ ይከላከላል?	አዎ 1 አይከላከልም 2	
47	በወባ መከላከያ አጎበር ወስጥ መተኛት ሰዉን ከሌሎች ነፍሳት ንክሻ ይከላከላል ?	አዎ 1 አይከላከለም 2	
48	በወባ ኬሚካል መድሐኒት የተነከረ አጎበር የወባ ትንኞችን ይገላል ብለዉ ያስባሉ?	አዎ 1 አይገልም 2 አላዉቅም 3	
49	በወባ መከላከያ አጎበር ዉስጥ መተኛት ሰዉን ከወባ በሽ ይከላከላል?	አዎ 1 አይከላከልም 2	
50	በ ርስዎ አስተያየት የወባ መከላከያ አጎበር በአማካኝ ለምን አመት ያህል ግዜ ያገለግላል?	አመት [____]	
51	የወባ መከላከያ አጎበር የት ንደሚገኝ ያዉቃሉ?	አዎ 1 አላዉቅም 2	→53
52	ለቁጥር 51 መልስዎ አዎ ከሆነ ከየት ንደሚገኝ	ከመንግስት ሆስፒ ል 1 ከመንግስት ጤና ጣቢያ 2	

	ይነግሩኛል? • ***የመለሱትን መልሶች በሙሉ ያክብቡ***	ከጤና ኬላ ወይም ክሊኒክ 3 ከግል የጤና ድርጅቶች 4 ከፋርማሲ ወይም ከመድሃኒት ቤቶች 5 ከሱቅ 6 ከገበያ 7 ሌላ ካለ ይግለጹ_____ 8	
53	በአሁን ሰኣት በቤትዎ ዉስጥ በሚተኙበት ሰአት የወባ መከላከያ አጎበር ቤተሰብዎ ይጠቀማሉ?	አዎ 1 አይጠቀሙም 2	ì 75
54	በአሁን ሰአት ምን ያህል የወባ መከላከያ አጎበር በቤትዎ ይገኛል (የሚጠቀሙትንና የማይጠቀሙን አጠቃሎ)? ***[ባክዎ ባለቤቱን አጎበሩን ንዲያሳይዎ ይጠይቋቸዉ አርሰዎም የአጎበሩ ብዘትና ሁኔ ይመልከቱ***	በቁጥር_____	
55	በቤቱ ዉስጥ ቃለ መጠይቁን በሚያካሂዱበት ግዜ ምን ያህል የወባ መከላከያ አጎበር ከአልጋዉ በላይ ንደተሰቀለ ይመልከቱ?	በቁጥር_____	
56	በአሁን ሰአት በቤት ዉስጥ ካለዉ የአልጋ አጎበር ዉስጥ ምን ያህሉን በመኝ ሰአት ይጠቀማሉ?	በቁጥር_____	
57	አርስዎን ጨምሮ ከቤተሰብዎ ዉስጥ ባለፈዉ ለሊት **በኬሚካል በተነከረ የአልጋ አጎበር** ወስጥ የተኛ አለ?	አዎ 1 የለም 2	
58	ርስዎን ጨምሮ ከቤተሰብዎ ዉስጥ ባለፈዉ ለሊት **ለረጅም ግዜ ወይም አመት በሚያገለግል** የአልጋ አጎበር ዉስጥ የተኛ አለ?	አዎ 1 የለም 2	
59	በቤትዎ ዉስጥ ካሉ ሰዎች ምን ያህሉ በአጎበሩ ዉስጥ ባለፈዉ ለሊት ተኝተዋል አርሰዎን ጨምሮ (በቤት ዉስጥና ከቤት ዉጭ)	አጠቃለይ ቁጥር [_____] ህጻናት ከአመስት አመት በ ች [___] ነፍሰጡር ናቶች በቁጥር [___]	
60	በመጨረሻ ግዜ የወሰዱት የአልጋ አጎበር ምን ያህል ግዜ ሆነዉ ?	አመት [___] ና [___] ወር	
61	በመጨረሻ ግዜ የወሰዱት የአልጋ አጎበር የሰጥዎት ማነዉ?	ከጤና ድርጅት 1 ከጤና ኤክስቴንሽን 2 ከመንግስ ዊ ያልሆነ ድርጅት 3 ከገበያ ወይም ከሱቅ ገዝቸዉ 4 ከሌላ ከሆነ ይግለጹ_____ 5 አላዉቅም 6	
	ከጥያቄ ቁጥር 62 አስከ 68 ያለዉን አጎበሩን በመመልከት ጥያቄዎችን ይመልሱ		
62	የአልጋ አጎበሩ ምን አይነት ንደሆነ ይግለጹልኝ?(በመመልከት ቁጥሩን ይሙሉት)	ለረጅም ግዜ የሚያገለግል [___] በኪሚካል የተነከረ [___] አላዉቅም [___]	
63	የአልጋ አጎበሩ በምን ሁኔ ላይ ይገኛል?	በጥሩ ሁኔ (ቀዳዳ የሌለዉ) 1 ደካማ (1-4 ቀዳዳ) ያለዉ 2 ሊከላከል የማይችል (>5 ቀዳዳ) 3 በ ሽግ ዉስጥ የተቀመጠ 4 አላዉቅም 5	
64	በቤት ዉስጥ ካለዉ አጎበር ዉስጥ ምን ያህሉ አጎብር ሬክ ንጉላርወይም አራት ማዕዘን ቅርጽ አለዉ?	_____	
65	በቤት ዉስጥ ካለዉ አጎበር ዉስጥ ምን ያህሉ አጎብር ክብ ቅርጽ አለዉ?	_____	
66	በቤት ዉስጥ ካለዉ አጎበር ዉስጥ ምን ያህሉ አጎብር ነጭ መልክ ወይም ከለር አለዉ?	_____	

67	በቤት ዉስጥ ካለዉ አጎበር ዉስጥ ምን ያህሉ አጎብር አረንጓዴ መልክ ወይም ከለር አለዉ?	_____	
68	በቤት ዉስጥ ካለዉ አጎበር ዉስጥ ምን ያህሉ አጎብር ሰማያዊ መልክ ወይም ከለር አለዉ?	_____	
	ከዚህ በመቀጠል ያሉትን ጥያቄዎችን ተጠያቂዎችን ቃለ መጠይቅ በማድረግ ይሙሏቸዉ		
69	ምን አይነት ቅርፅ ያለዉን አጎበር ይመርጣሉ?	ሬክ ንጉላር ወይም አራት ማዕዘን 1 ክብ ቅርጽ 2 አራት ማዕዘን ወይም ክብ ቅርፅ ያለዉን 3 የትኛዉም ቅርፅ ቢሆን 4 አላዉቅም 5	
70	ምን አይነት መልክ ወይም ከለር ያለዉን አጎበር ይመርጣሉ?	ነጭ 1 አረንጓዴ 2 ሰማያዊ 3 አረንጓዴና ሰማያዊ 4 ማንኛዉንም ከለር 5 ሌላ ካለ ይግለጹ _____ 6	
71	በቤትዎ ዉስጥ አንድ አጎበር ብቻ ቢኖር ማን ቢጠቀመዉ ይፈቅዳሉ ወይም ይሻላል? • ***አንድ መልስ ብቻ ያክብቡ***	ባል 1 ሚስት 2 ባልና ሚስት 3 ናት ከሁሉም ትንሹ ወይም ህጻን ልጅ ከሆነ ጋር 4 ወጣት ልጅ 5 ድሜ የገፉ ወይም አያቶች 6 ነፍሰ ጡር ናት 7 ሌላ ካለ ይግለጹ_____ 8 አላዉቅም 9	
72	ተጨማሪ የአልጋ አጎበር ወይም አጎበሮ በአዲስ ንዲተካ ይፈልጋሉ ?	አዎ ***1*** አልፈልግም ***2***	
73	አጎበሩን በሚጠቀሙበት ሰኣት ያጋጠሞት ችግር አለ?	አዎ 1 የለም 2	↓ **አቁም**
74	ለቁጥር 73 ምላሽዎ አዎ ከሆነ አርስዎ ወይም የቤተሰብዎ ኣባል ያጋጠማቸዉን ችግር ቢገልጹልኝ? • ***የመለሱትን መልሶች በሙሉ ያክብቡ***	በአጎበር ወስጥ መተኛት ሙቀት ያመጣል 1 በአጎበር ዉስጥ ሆነንም ትንኝ ሊነክሰን ይችላል 2 በማ ከአጎበሩ ወስጥ ለመዉጣት አይመችም 3 ከፍራሽ ስር ሁሌ በማ መሸነጥ ያስለቻል 4 ቆዳን ይቆጠቁጣል ወይም ያሳክካል 5 ሌላ ካለ ይግለጹ_____ 6 አላዉቅም 7	
	ቁጥር 75 ና 76 ጥያቄዎች የሚመልሱ በቤ ቸዉ ዉስጥ አጎበር የሌላቸዉ ናቸዉ		
75	በአሁን ሰአት በቤትዎ ዉስጥ አጎበር ከሌላ ከዚህ ቀደምም ቢሆን የለዎትም ማለት ነዉ?	አዎ 1 አይደለም 2	
76	በቤትዎ ዉስጥ አጎበር ከሌለ አጎበር የሌለበት ምክንያት ሊገልጹልኝ ይችላሉ? • ***ዝርዝሩን አያንብቡላቸዉ*** • ***የመለሱትን መልሶች በሙሉ ያክብቡ***	በቤት ዉስጥ መኖሩ ለመኝ አይመችም 1 ስለ ጥቅሙ ሰላልተረዳሁ 2 ከየት ንደሚገኝ ስለማላዉቅ 3 ከገበያ አለመገኘቱ 4 በኬሚካል ስለተነከረ ለጤና ችግር ያጋልጣል **5** የወባ በሽ ን ስለማይከላከል **6** አጎበሩ በመጥፋቱ ወይም በማርጀቱ 7 አጎበሩን በቤት ዉስጥ ለመስቀል በቂ ቦ አለመኖር **8** ሌላ ካለ ይግለጹ _____ 9	

		አላዉቅም 88	

ጥያቄችንን ጨርሰናል. ግዜያትን በመወሰድ ለዚህ ጥያቄ ስለተባበሩኝ ክፍ ያለ ምስጋና አቀርባለሁ::

	ስም	ፊርማ	ቀን
መረጃ ሰብሳቢ	_____	_____	_____
ተቆጣጣሪ	_____	_____	_____

Declaration

I, the undersigned declare that this thesis is my original work in partial fulfillment of the requirement for the degree of Master of Public Health. I also declare that it has never been presented in this or any other university and that all resources and materials used in the thesis have been duly acknowledged.

Student Name: _____

Signature: _____

Place of submission: _____

Date of submission: _____

This thesis has been submitted for examination with my approval as a university advisor.

Advisor Name: _____

Signature: _____

Date of submission: _____